

What is claimed is:

1. A method of assigning hall calls to reduce the net energy expenditure in operating a bank of elevator cars, the method comprising the steps of:

assigning a threshold ratio value of energy saved per time delayed;

in response to a hall call to receive a passenger, for each of a plurality of elevator cars, the plurality being selected from the elevator cars in the bank, calculating the energy use to answer the call and deliver the passenger to a destination, wherein the destination is selected from the group consisting of an inferred destination and a preselected destination;

for each of the elevator cars of the plurality, calculating the ratio of (i) the energy which would be saved by assigning that car to the call versus assigning the car with the shortest time to destination to the call to (ii) the extra time to destination which would result by assigning that car to the call versus assigning the car with the shortest time to destination; and

assigning the elevator car with the lowest calculated energy use that also has a ratio of (i) to (ii) at or above the threshold ratio value to answer the hall call.

2. A method of assigning hall calls to reduce the net energy expenditure in operating a bank of elevator cars, the method comprising the steps of:

in response to a hall call to receive a new passenger, for each of a plurality of elevator cars, the plurality being selected from the elevator cars in the bank, calculating the total cost (TC_e) to answer the call and deliver the passenger to a destination, wherein the destination is selected from the group consisting of an inferred destination and a preselected destination, and wherein the total cost (TC_e) is calculated according to the equation

$$TC_e = \left[\text{if } n \geq 1 \sum_{k=1}^n SDF_{e,k} + ETD_e \right] + x[\Delta J_e]$$

wherein $SDF_{e,k}$ is the delay that the new passenger will cause to passenger k if the new passenger is allocated to the elevator e,

wherein ETD_e is the estimated time to destination of the new passenger if the passenger were to use elevator e,

wherein ΔJ_e is the additional energy required by the system if elevator e is to serve the hall call of the new passenger and deliver the new passenger to the destination, wherein x is a preselected relative importance value defining the relative importance of passenger journey time versus energy consumption, and

wherein there are n passengers traveling in the cars or waiting for a car in response to prior hall calls at the time allocation for the new passenger is being assessed,

excluding the new passenger for which allocation is being assessed; and

assigning the elevator car with the lowest total cost (TC_e) to answer the hall call.

3. The method according to claim 2, further comprising the step of assigning a value to x.
4. Computer readable memory comprising computer instructions directing at least one computer processor to perform the method according to claim 2.
5. A computer-implemented elevator control system comprising:
at least one computer processor; and
computer readable memory comprising computer instructions directing the computer processor to perform the method according to claim 2.
6. The system according to claim 5, wherein the value of x is programmable or selectable.
7. Electronic logic circuitry configured to perform the method according to claim 2.
8. An electronic elevator control system comprising:
electronic logic circuitry configured to perform the method according to claim 7,
wherein the value of x is programmable or selectable.